Attachment 1, Part I – Application Cover Sheet

Application for a grant under § 78645 of the Safe, Clean, Reliable Water Supply Act of 1996

The The Regents of the University of California
(Exact legal name of local entity applying for the grant)

Of University of California, Merced, 5200 North Lake Road, Merced, CA 95343-7505
(Mailing address of local entity)

Of the County of Merced, State of California, does hereby apply to the California Department of Water Resources for a grant in the amount of $ 191,936.

For the following project under the Drainage Reuse Grant Program of the Safe, Clean, Reliable Water Supply Act of 1996:

An Efficient Solar Thermal-Powered Evaporation System for Salt Harvesting
(Specify project title)

By Thea Vicari Date 12-18-2014
(Signature of authorized representative)

Thea D. Vicari — *Director, Sponsored Projects Office*
(Print or type name of authorized representative) *(Title)*

Telephone (209) 228-4318 E-mail tvicari@ucmerced.edu

Brief Proposal Description:

Scientists at the University of California Advanced Solar Technologies Institute (UC Solar) at UC Merced will design, demonstrate and evaluate an evaporation system powered by a UC Merced-developed non-tracking solar thermal array to create a low cost, energy efficient salt harvesting system for desalination of brine and brackish groundwater. The proposed system will integrate an existing non-tracking solar thermal array with a commercial 10-gallon per hour capacity thermal evaporator to create a first-of-its-kind pilot-scale solar thermal-powered evaporation system. Once the system is installed and tested at the Castle Research Facility at UC Merced, its effectiveness will ten be evaluated using water samples provided by third parties throughout California's Central Valley.

Attachment 1, Part II – Applicant's Representatives

Project Name An Efficient Solar Thermal-Powered Evaporation System for Salt Harvesting

Primary Project Contact

Name Roland Winston Title Distinguished Professor

Address 5200 N. Lake Road, Merced, CA 95343-7505

Telephone (209) 228-4346 FAX (_____)_____

E-mail rwinston@ucmerced.edu

Alternate Project Contact

Name Ronald Durbin Title Executive Director, UC-Solar

Address 5200 N. Lake Road, Merced, CA 95343-7505

Telephone (209) 228-4565 FAX (_____)_____

E-mail rdurbin@ucmerced.edu

Alternate Project Contact (If Applicable)

Name_____ Title_____

Address_____

Telephone (_____)_____ FAX (_____)_____

E-mail_____

Type of Organization: State-controlled public university

(city, county, water district, university, etc.)

Attach a copy of the applicant's charter and the names and titles of its officers.

Attachment I, Part III – Summary of Project Costs

Provide a summary of the financing information about the proposed project, including cost share (if applicable).

		% of Total Cost
Total Cost of Project:	$ 191,936	
Amount Requested (CWC §78645):	$ 191,936	100%
Amount of Cost Share[1]:	$ 0	0%
Amount of Federal Contribution:	$ 0	0%
In-kind Contributions:	$ 0	0%
Amount to Funded by Others Sources: (Describe below in table.)	$ 0	0%

Sources of funds from partner agencies for this project, if applicable:

Amount	**Name of Source**	**Status of Funds[2]**
$ N/A		
$		
$		
$		
$		
Total: $		

Additional explanation, if necessary:

_____

_____

_____

_____

_____

Notes:

1. No cost share is required; however, grantees are required to show cost share (e.g., federal, local, or other funds) if an awarded project costs more than the grant amount.
2. Identify the current status of funds: available, planned/budgeted, awarded or pending.

UNIVERSITY OF CALIFORNIA

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SANTA BARBARA • SANTA CRUZ

Office Of Research and Economic Development
Vice Chancellor

UNIVERSITY OF CALIFORNIA, MERCED
5200 NORTH LAKE ROAD
MERCED, CA 95343
TELEPHONE: (209) 228-4400

Attachment I, Part IV—Authorization Resolution

December 18, 2014

California Department of Water Resources
Division of Integrated Regional Water Management
South Central Region Office
3374 E. Shields Avenue
Fresno, CA 93726

Authorizing Resolution for DWR Drainage Reuse Grant Program Proposal

Dear Committee Members:

Resolved by The Board of Regents of the University of California that pursuant to all of the terms and provisions of the Safe, Clean, Reliable Water Supply Act of 1996, application by this university as a local agency be made to the California Department of Water Resources to obtain a grant for proposal entitled, "An Efficient Solar Thermal-Powered Evaporation System for Salt Harvesting".

Ms. Thea Vicari, Director of Sponsored Projects as the authorized signing official of the University of California is hereby authorized and directed to prepare the necessary date, make investigations, sign, and file such application with the California Department of Water Resources as approved by the Vice Chancellor for Research and Economic Development.

Sincerely,

Dr. Samuel J. Traina
Professor of Life and Environmental Sciences and Environmental Engineering
Vice Chancellor for Research and Economic Development
University of California, Merced

Attachment 2—Project Proposal and Task Breakdown

An Efficient Solar Thermal-Powered Evaporation System for Salt Harvesting

Funding Agency/Program: California Department of Water Resources' (DWR's) Drainage Reuse Grant Program

Program Category: Drainage Treatment and Salt Separation/Utilization

Priorities Addressed by this Proposal:

12. Develop sustainable and environmentally acceptable methods to harvest salts and potentially toxic elements from drainage water.

14. Use concentrate from desalination processes for recycling of valuable salts, such as gypsum, sodium sulphate, magnesium and calcium chlorides, etc.

Introduction

Scientists at the University of California Advanced Solar Technologies Institute (UC Solar) at UC Merced will design, demonstrate and evaluate an evaporation system powered by a UC Merced-developed non-tracking solar thermal array to create a low cost, energy efficient salt harvesting system for desalination brine and brackish groundwater.

This demonstration system has the potential to process very high total dissolved solid (TDS) waste streams, while significantly lowering the energy costs and greenhouse gas emissions created by fossil fuel-powered evaporators. It will create an efficient and environmentally-friendly "last mile" component to reverse osmosis (RO) and thermal desalination systems, particularly in areas where the brine produced by these systems cannot be safely discharged and where there is a desire to harvest and recycle valuable salts and remove potentially toxic elements. Evaporation, in one form or another, is an enabling component of zero liquid discharge (ZLD) systems for desalination and water reclamation, and the accelerated solar-powered evaporation approach described in this proposal could be an important breakthrough.

The proposed system will integrate an existing non-tracking solar thermal array with a commercial 10 gallon-per-hour capacity thermal evaporator to create a first-of-its-kind pilot-scale solar thermal-powered evaporation system. Once the system is installed and tested at the Castle Research Facility at UC Merced, its effectiveness will then be evaluated using water samples provided by the program sponsor and by third parties throughout California's Central Valley. This is an 18-month project, and the total requested budget is $199,000.

Key Personnel

The following UC Merced personnel will be associated with this project:

Project Director, Thea Vicari. Thea Vicari is the Director in the Sponsored Projects Office (SPO) at UC Merced. The SPO is a unit within the Office of Research and Economic Development (ORED), and it is responsible for reviewing, endorsing and submitting proposals to extramural sponsors for research, training, instructional and other activities. SPO also prepares, negotiates and accepts agreements for projects funded by federal and state agencies, foundations and other public and private sources. Ms. Vicari will be responsible for executing the grant agreement and any amendments and approving invoices for the applicant. Contact: tvicari@ucmerced.edu, 209-228-4318.

Project Manager, Ronald Durbin. Mr. Durbin is the Executive Director of the University of California Advanced Solar Technologies Institute (UC Solar). UC Solar is a multi-campus research institute made up of faculty from the University of California's Merced, Berkeley, Santa Barbara, Davis, San Diego, Riverside, Santa Cruz, Irvine and Los Angeles campuses. Headquartered at UC Merced, UC Solar creates technologies that make solar energy systems

more efficient, more affordable, and easier to integrate, while educating and developing tomorrow's solar energy leaders and entrepreneurs. Mr. Durbin will be the day-to-day management contact for this project. Contact: rdurbin@ucmerced.edu, 209-228-4565.

Principal Investigator, Dr. Roland Winston. Roland Winston is a Professor of Natural Sciences and Engineering. A leading figure in the field of nonimaging optics and its applications to solar energy, he is sometimes termed the "father of nonimaging optics." He is the inventor of the compound parabolic collector (CPC), a breakthrough technology in solar energy. He is also a former Guggenheim Fellow, past head of the University of Chicago Department of Physics, a member of the founding faculty of University of California Merced, and, as of 2010, head of the UC Solar Institute. Professor Winston has authored some 200 publications and co-authored three books: Optics of Non-Imaging Concentrators (academic press, 1978); High Collection Non-Imaging Optics (academic press, 1989); and Non-Imaging Optics (Elsevier academic press 2005). He holds over 60 US letter patents on non-imaging radiant energy concentration and illumination. Dr. Winston is a Fellow of the American Physical Society, the American Optical Society, the American Association for the Advancement of Science and the American Solar Energy Society. He is a member of the International Solar Energy Society and the SPIE (the International Society for Optical Engineering). Dr. Winston will lead the overall project and will direct the research. Contact: rwinston@ucmerced.edu, 209-228-4346.

Project Description

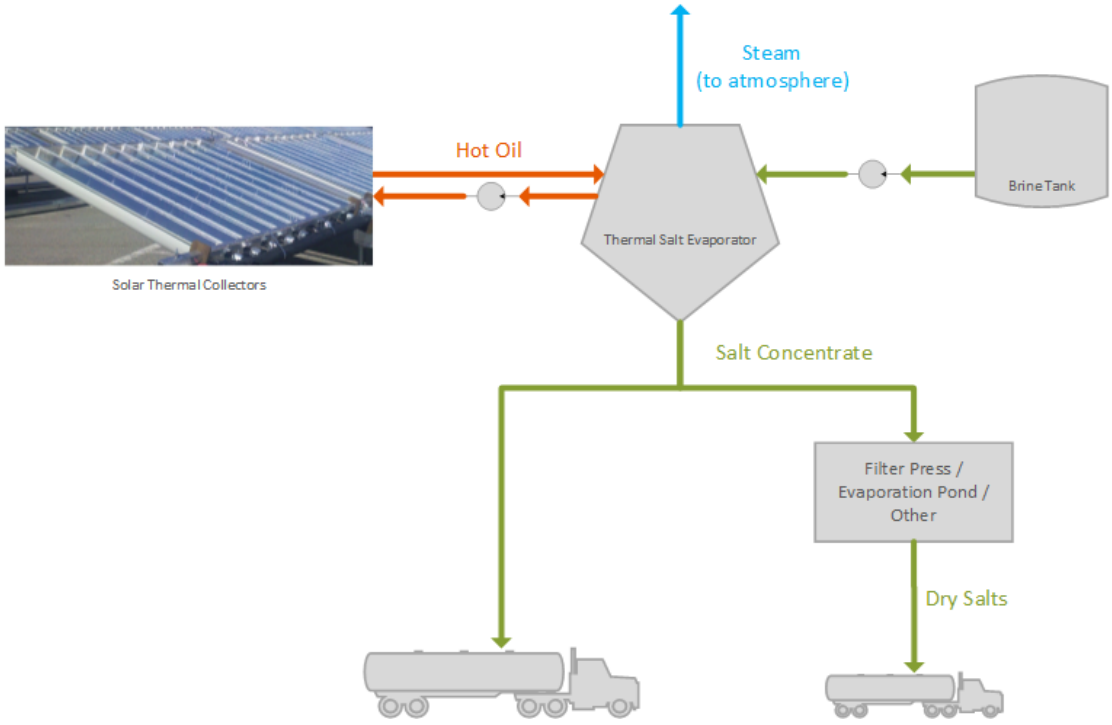
Scientists at the University of California Advanced Solar Technologies Institute (UC Solar) at UC Merced plan to demonstrate a commercial evaporation system powered by a unique non-tracking solar thermal array to create a low cost, energy efficient salt harvesting system for desalination brine and brackish groundwater.

This system has the potential to process high total dissolved solid (TDS) waste streams, while significantly lowering the energy costs and greenhouse gas emissions created by fossil fuel powered evaporators. It creates an efficient "last mile" component to desalination systems where the concentrate (or "brine") produced by desalination systems cannot be safely discharged.

The proposed system will integrate a UC Merced-developed non-tracking solar thermal collector called an external compound parabolic concentrator (or XCPC) array with a commercially-available thermal evaporator. The output of the evaporator is a very high TDS concentrate known as "slurry." This slurry will then be further processed using a filter press or other commercially-available technology, which will remove the remaining water content and enable the commercial reclamation of the harvested salt.

This project will take advantage of a fully-functional solar thermal array at the UC Merced Castle Research Facility—lowering the overall cost of the project and providing a centrally-

located lab environment for demonstration and testing. The outcome will be a solar-powered evaporation system that can process desalination brine and brackish groundwater.

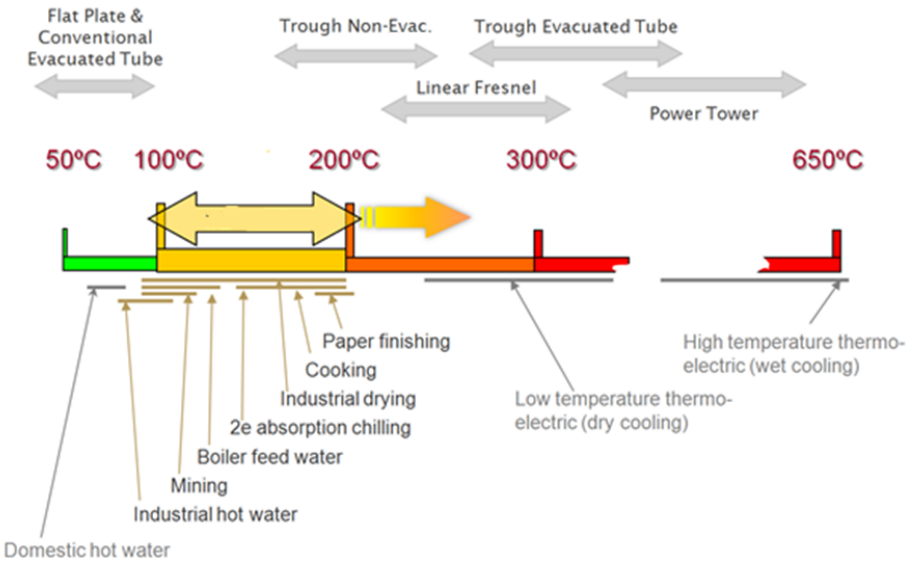


This project will create a first-of-its-kind solar thermal-powered evaporation system that can provide an efficient "last mile" salt harvesting component to desalination systems

Once the system is installed and tested, its effectiveness will then be evaluated using water samples provided by the project sponsor, and by third parties throughout California's Central Valley. These samples will be tested for content both before and after the evaporation process by scientists working in UC Merced's Environmental Analytics Laboratory (EAL). Testing will include identifying and quantifying the organic and inorganic content of the samples (primarily salts such as gypsum, sodium sulphate, magnesium, selenium and calcium chlorides).

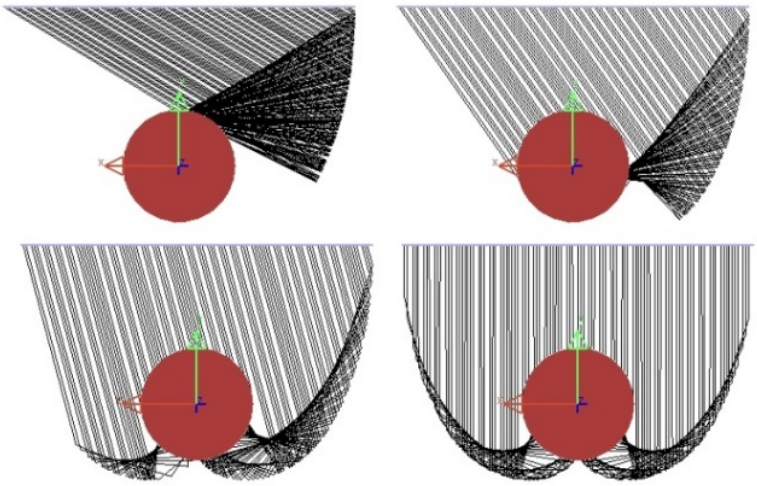
The key components of this project are the XCPC array, the thermal evaporator, and the EAL's water sample testing capabilities. Each of these components is described in greater detail in the following sections.

The XCPC Array: With support from the California Energy Commission PIER Program, the solar technology research team at UC Merced has designed and developed an innovative low-cost, high temperature, non-tracking solar thermal collector system called the XCPC (short for external compound parabolic concentrator). The XCPC was designed to efficiently meet the needs of industrial process heat applications in the 100°C - 200ºC (200°F - 400°F) range.



Numerous industrial process heat applications (including evaporation) require temperatures in the 100°C - 200°C (~200°F - 400°F) temperature range

The XCPC system consists of a series of evacuated solar thermal absorbers paired with wide-angle, non-imaging reflectors that gather and concentrate both direct and indirect sunlight.



The XCPC's wide-angle design enables it to reach operating temperatures in excess of 200°C without the need to track the sun—making it the only solar thermal system to do so

The XCPC has a solar thermal efficiency of 50% at temperatures up to 200ºC. Previously, only tracking solar thermal collector systems could achieve this temperature. However, the XCPC has fewer moving parts than tracking systems, making it easier to install and maintain, and its lightweight design enables it to be mounted on rooftops. The XCPC also performs well in diffuse (hazy or dusty) conditions, where tracking systems produce little or no heat.

The XCPC will typically generate 54 therms per year per installed kWt (offsetting .29 tons of carbon dioxide annually when compared to natural gas). When commercially available, it is projected that XCPC systems will cost approximately $1,000 per kWt installed— or about one-half of what existing tracking systems cost. In addition to the treatment of adverse water through evaporation, XCPC systems can augment or replace fossil fuel driven systems in a number of instances that could be of great value to California's agricultural and food processing industries.

UC Merced researchers have constructed a 40 kW thermal test array that powers a commercially-produced 6.5 ton double-effect absorption cooling system. The UC Merced Solar Cooling Demonstration Project is the first of its kind (non-tracking collectors/double-effect chiller), and it has been in operation since the summer of 2011. It demonstrates solar-powered air conditioning in a real-world setting. This same solar thermal array will be used for the solar-powered evaporation project—significantly reducing the overall cost of the project.

UC Merced's XCPC array has been in operation since 2011 and integrates both north-south and east-west collectors into a 40 kWt capacity array

The XCPC array at UC Merced's Castle Research facility is essentially "pre-commercial" technology, but there are a number of licensees worldwide who are in various stages of developing commercial XCPC systems n. This includes licensees in the Middle East, India, China, Mongolia, the Caribbean and the United States. These licensees have helped to produce demonstration installations in each of these regions—perhaps most notably at the headquarters of the Gas Technology Institute (GTI) in Chicago and at the Al Khaleej Sugar Refinery in Jabel Ali, United Arab Emirates.

This XCPC demonstration array is installed at the headquarters of the Gas Technology Institute (GTI) in Chicago

The XCPC array being installed at the Al Khaleej Sugar Refinery in Jabel Ali, United Arab Emirates

The XPC system was also recently selected as the only solar thermal energy system to be demonstrated at the MASDAR Institute of Science and Technology in Abu Dhabi. The facility will showcase a series of thermal desalination systems to the MENA region, and it will be operational from April 2015 through October 2016.

The ENCON Evaporator: Scientists at UC Merced have identified the ENCON SV-10 steam-powered thermal evaporator as the candidate evaporator for this proposal. This evaporator was selected due to its size (it has a 10 gallon per hour evaporation capacity), and its ability to be modified to operate using environmentally-friendly (food grade) heat transfer fluid. Its energy requirements (~30 kWt at 250°-300º F) are a good match for the XCPC array's thermal capacity, and its size allows for the processing of up to 80 gallons of feedwater in a single day.

ENCON is a leading U.S. manufacturer of thermal evaporators for wastewater evaporation. Their thermal evaporator product line ranges in capacity from 8-400 gal/hr. ENCON's customers include Ford, Pepsi, 3M, Bayer Crop Science, Goodrich, Alcoa, DuPont, GE and Lawrence Livermore National Labs.

The Encon SV-10 thermal evaporator (10 gph capacity)

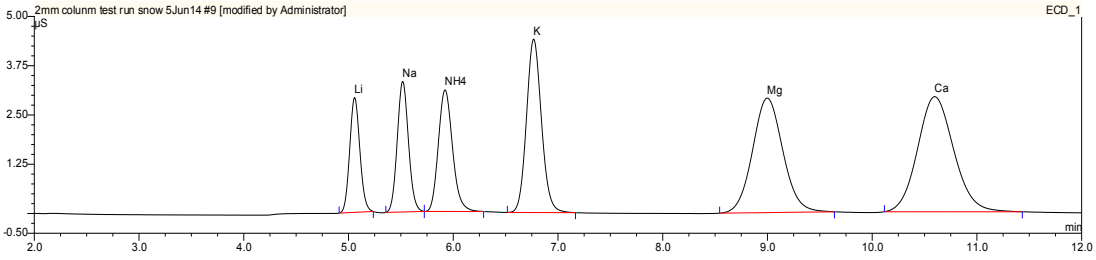
Water Sample Testing: Water sample testing will be conducted with a variety of state-of-art analytical instruments housed at the Environmental Analytical Laboratory (EAL), a centralized facility at the UC Merced campus that provides quantitative analysis for a wide variety of environmental materials.

UC Merced's Environmental Analytical Laboratory (EAL)

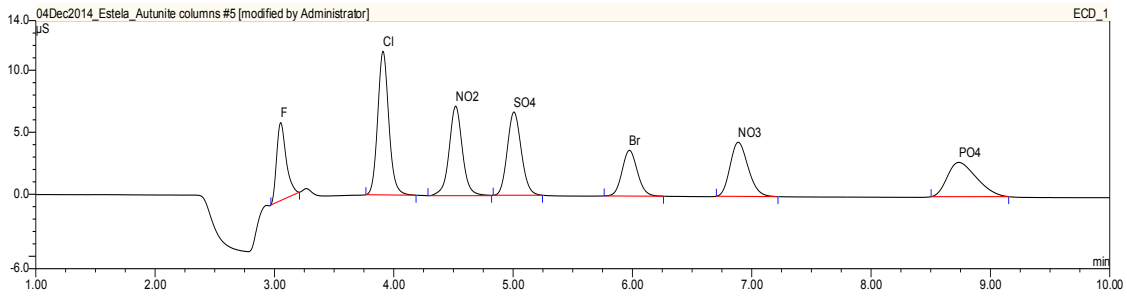
The EAL houses state-of-the-art instrumentation that analyzes liquid, soil, and biological samples for an array of elements, chemical compounds and species, nutrients, and organic compounds. It provides researchers with high quality, timely and affordable analytical service through reliable, well-maintained research-grade instrumentation, established standard operating procedures (SOPs), comprehensive training and technical expertise.

The projected sample analytical work will primarily involve using the following four instruments (although additional instruments may be used as needed):

Dionex Reagent-Free Integrated Ion Chromatography System ICS-2000 Ion Chromatograph for major anions and cations analyses, which include major salt contents in pre- and post-evaporated drainage or brine samples such as Na, K, Mg, Ca, Cl, SO4, NO3, F, Br, etc.



Major cations (sodium, potassium, magnesium, calcium) in solution samples measured by the ICS-2000 System



Major anions (chloride, sulfate, nitrate, etc.) in solution samples measured by the ICS-2000 System

Agilent 7500ce Inductively Coupled Plasma Mass Spectrometer (ICP-MS) for trace elements, especially environmentally toxic metals such as Se, As, Cd, Pb, U, etc. Agilent 7500ce ICP-MS is a high performance quadrupole mass spectrometer that offers ultra-low detection limit in ppt range and high sample throughout for multi-element analyses in solution samples.

Perkin-Elmer Optima 5300dv Dual View Inductively Coupled Plasma Optical Emission Spectrometer (ICP-OES) for detection limit in mid-ppb range and wide elemental capabilities. Its ease-of-use software and high sample throughput makes it a powerful tool for multi-element analyses in relatively high concentration samples. Targeted elements measured for this project could include higher concentration alkali and alkaline earth metals, as well as certain heavy metals.

Shimadzu TOC-Vcsh Total Organic Carbon Analyzer (TOC Analyzer) to measure total organic carbon and nitrogen contents in liquid samples.

Project Objectives

The objectives of this project are to address the need to develop sustainable and environmentally acceptable methods to harvest salts and potentially toxic elements from drainage water, and to use concentrate from desalination processes for recycling of valuable salts, such as gypsum, sodium sulphate, magnesium and calcium chlorides, etc. It will achieve both by combining novel non-tracking solar thermal collectors with a commercial thermal evaporator, and to validate the effectiveness of this system across a wide range of water samples.

To the best of the researchers' knowledge, the combination of solar thermal collectors with commercial evaporators has not been tried before. It has certainly not been tried using low-cost, wide-angle collector concentrators such as those developed at UC Merced (the XCPC). This project will validate that this combination is practical, and that it is an effective solution for harvesting salts from desalination brine and brackish groundwater. It will also evaluate the

energy cost savings and GHG reduction effects of using this type of solution as part of an overall desalination strategy for California's Central Valley.

Task Breakdown

The project duration is 18 months. There are seven specific project tasks (see below). An estimated duration for each task is provided, and each task will be performed sequentially.

Task 1 (four months)—Define the testing parameters, design the test system, and plan the evaporator installation.

Task 2 (two months)—Install the evaporator and all test equipment.

Task 3 (one month)—Test the evaporator performance using clean water.

Task 4 (two months)—Procure and test the desalination brine and brackish groundwater samples before evaporation.

Task 5 (four months)—Evaporate the water samples and evaluate the evaporator system effectiveness for each sample.

Task 6 (one month)—Test the desalination brine and brackish groundwater samples post-evaporation.

Task 7 (four months)—Document the research results and produce the final report. Also write and publish academic journal papers describing the project and its outcomes.

Scientific Merit

Although thermal evaporation systems are in wide use in numerous water-reduction applications throughout the U.S., this project will represent the first time that the UC Merced-developed XCPC wide-angle solar thermal collector/concentrator is integrated with a commercial thermal evaporator to create an energy efficient, GHG-free system to harvest the salts from desalination brine and brackish groundwater.

The XCPC system consists of a series of evacuated solar thermal absorbers paired with non-imaging reflectors that gather and concentrate both direct and indirect sunlight. Unlike tracking solar thermal systems, which are expensive to install and complex to operate and maintain, the XCPC system's lightweight design enables it to be mounted on rooftops or even walls. It also performs well in diffuse (hazy or dusty) conditions, where other solar concentrators produce little or no heat.

The XCPC system design and underlying research are described in numerous published reports and academic papers, including:

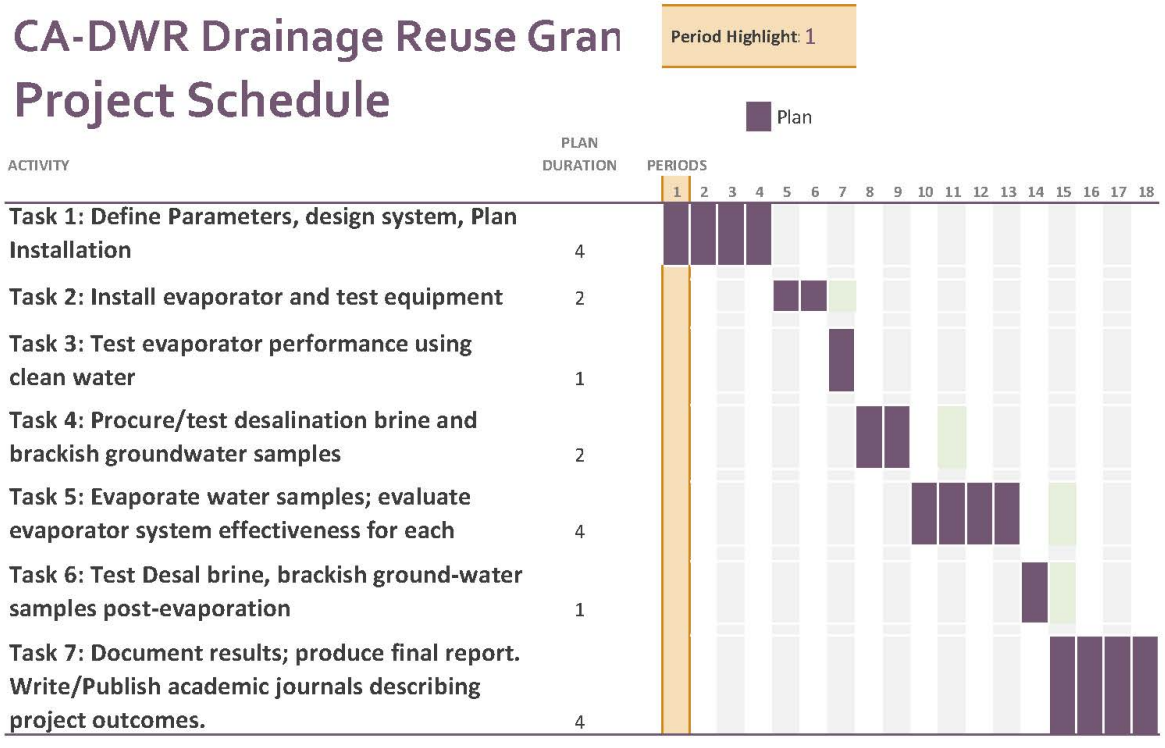
- "Design and Development of Low-cost, High-temperature, Solar Collectors for Mass Production," By: Roland Winston. 2009 California Energy Commission PIER Public Interest Energy Research Program Report: CEC-500-05-021

- Performance of the Merced Demonstration XCPC Collector and Double Effect Chiller
  By: Bennett Widyolar, Roland Winston, Lun Jiang and Heather Poiry.
  Journal of Solar Energy Engineering 136(4), 041009 (June 03, 2014)

- "Efficient Stationary Solar Thermal Collector Systems Operating at a Medium-Temperature Range," By: Kim, Yong Sin; Balkoski, Kevin; Jiang, Lun; et al.
  APPLIED ENERGY Volume: 111 Pages: 1071-1079 Published: November 2013

Schedule

The project tasks will be performed in accordance with the following project schedule.



*A Period = 1 month.

Budget

The total budget for this project is $191,936. The budget is allocated as follows:

1. Salary **$52,667**

Salary totals for project personnel include an annual increase for inflation in Year 2.

A. Salary: Principal Investigator ***$19,248***

The proposed project budget includes funds to support the PI, Dr. Roland Winston. The total amount requested will provide his salary for one summer month ($19,248 per month) in Year 1 at 100 percent effort. Dr. Winston will lead the overall project and will direct the research.

B. Salary: Graduate Student Researchers ***$33,420***

The budget also includes funds to support one graduate student researcher (GSR). The total amount requested will cover the GSR's salary for 3 semesters and one summer at 49.9 percent effort in Years 1–2 at the current Level V salary ($4,026 per month). Under the direction of Dr. Winston, the GSR will be responsible designing the evaporation system, directing its construction, analyzing its performance, and contributing to research reports and academic papers.

2. Fringe Benefits **$2,585**

Funds are included in the proposed budget to cover fringe benefits for the project personnel for 2 years. The total requested is based on the following composite fringe benefits rates:

- PI: Fringe benefit rate of 11% *$2,117*
- Graduate student researcher: Fringe benefit rate of 1.4% *$467*

3. Equipment **$30,000**

To conduct the proposed project, funds are requested to purchase the ENCON SV-10 steam-powered thermal evaporator, including custom factory modifications.

4. Travel **$2,000**

The budget includes funds totaling $1,000 per year for travel required to conduct the proposed project. This will support meetings with project sponsors and participants—particularly those third-parties who will provide adverse water samples. These funds may also be used to enable the researchers to attend one or more conferences in California to present their research findings.

5. Other Direct Costs **$81,621**

A. Materials and Supplies **$15,000**

Funds for materials and supplies are requested in the amount of $10,000 in Year 1 and $5,000 in Year 2 of proposed project. These funds will cover the purchase of the plumbing and control systems necessary to construct the project.

B. Consulting Services **$15,000**

The budget request for the proposed project includes funds to cover fees for services provided by the firm APG Solar. APG Solar will provide professional plumbing

and electrician services necessary to construct the project, and will also provide professional consulting services during the design phase.

C. Other: Lab Test Fees **$5,000**

The budget request for the proposed project includes funds to cover fees for services provided by the UC-Merced Environmental Analytical Laboratory (EAL). The EAL will perform the analysis of the pre- and post-evaporation water samples.

D. Graduate Student Tuition, Fees & Health Insurance **$46,621**

The proposed project budget includes funds to cover tuition, student fees and health insurance for the GSR based on the following current rates:

- Tuition: $5,610/semester x 3 semesters *$17,391*
- Non-Resident Tuition: $7,551/semester x 3 semesters *$23,408*
- Fees: $486/semester x 3 semesters *$1,507*
- Health Insurance: $1,173/semester x 3 semesters *$4,315*

Note: The total includes an annual increase for inflation in Year 2.

6. Facilities and Administrative (F&A) Costs **$23,063**

The funds requested for facilities and administrative costs are based on an F&A rate of 25 percent. This rate is what has been historically proposed and awarded on grants made by the California Department of Water Resources to the University of California, Merced.

Deliverables

Scientists at UC Merced will design, demonstrate and evaluate an evaporation system powered by a UC Merced-developed non-tracking solar thermal array to create a low cost, energy efficient salt harvesting system for desalination brine and brackish groundwater. Once this "pilot-scale" system is installed and tested, its effectiveness will then be evaluated using water samples provided by the project sponsor, and by third parties throughout California's Central Valley. These samples will be tested for organic and inorganic content both before and after the evaporation process by scientists working in UC Merced's Environmental Analytics Laboratory (EAL). The research will be performed in accordance with the Task Breakdown and Schedule provided in this proposal.

Mandatory grant reporting tasks, including the submittal of written quarterly progress reports, invoices, a final report, and a post-completion report will be submitted in accordance with the sponsor requirements outlined in the research contract.

Conclusion

This project will address the need to develop sustainable and environmentally acceptable methods to harvest salts and potentially toxic elements from drainage water, and to use concentrate from desalination processes for recycling of valuable salts. It will achieve both by

combining novel non-tracking solar thermal collectors with a commercial thermal evaporator and validating the effectiveness of this system across a wide range of water samples—including samples designated and supplied by the project sponsor.

The tasks, schedule, and funds requested are adequate to support this groundbreaking project. We look forward to working with the DWR both now and in the future.

Attachment 3 – Eligibility Requirements

Certain applicants and project types require submittal of eligibility documentation. The Eligibility Checklist below may be used as a tool to help determine whether an applicant or a project requires completion and submittal of eligibility documentation. **If documentation is required to prove eligibility for any of the items listed, the documentation must be provided in the grant application.** Some documentation may require explanation or a narrative so as to provide sufficient information for DWR staff to determine if eligibility is met. If the criterion applies to the grant applicant, grant applicants should include a narrative for each of the eligibility requirements below. If DWR determines that the applicant does not have the authority to enter into a grant agreement with the State, the applicant will not be eligible for funding and the application will not be reviewed.

Eligibility Checklist		
Applicable?		
Yes	**No**	**Eligibility Criteria**
		Local Agency Certification
☒	☐	1) Local Agency: The applicant must provide a written statement (and additional information if noted) containing the appropriate information outlined below: • Is the applicant a local agency as defined in CA Water Code §78640(b)? • What is the statutory or other legal authority under which the applicant was formed and is authorized to operate? • Does the applicant have legal authority to enter into a grant agreement with the State of California? • Describe any legal agreements among partner agencies and/or organizations that ensure performance of the proposal and tracking of funds.
☒	☐	2) Basin Plan: Is each project consistent with a Regional Water Quality Control Plan (Basin Plan)?
		Urban Water Suppliers
☐	☒	3) Urban Water Suppliers: List the urban water suppliers that will receive funding from the proposed grant. Please provide the agency name, a contact phone number and an e-mail address. Those listed must submit self-certification of compliance with CWC §525 *et seq*. and AB 1420 (links to appropriate forms in Appendix A).
☐	☒	4) Urban Water Suppliers: Have all of the urban water suppliers listed in #3 above submitted complete Urban Water Management Plans (UWMPs) to DWR? Have those plans been verified as complete by DWR? If not, explain and provide the anticipated date for having a complete UWMP.
		Groundwater Projects/Users
☐	☒	5) Groundwater Projects: Does the proposal include any groundwater projects or other projects that directly affect groundwater levels or quality? If so, provide the name(s) of the project(s) and list the agency(ies) that will implement the project(s).
☐	☒	6) Groundwater Projects: For the agency(ies) listed in #5 above, how has the agency complied with CWC §10753 regarding Groundwater Management Plans (GWMPs)?
☐	☒	7) Groundwater Users: List the groundwater users that will receive funding from the proposed grant. Please provide the agency/organization name, a contact phone number, and an e-mail address. If there are none, please indicate so and skip to #9.
☐	☒	8) Groundwater Users: Have all of the groundwater users, listed in #7 above met the requirements of DWR's CASGEM Program? http://www.water.ca.gov/groundwater/casgem/ If not, explain and provide the anticipated date for meeting the requirements.

Agricultural Water Suppliers		
☐	☒	9) Agricultural Water Suppliers: List the agricultural water suppliers that will receive funding from the proposed grant. Please provide the agency/organization name, a contact phone number and e-mail address. If there are none, please indicate so and go to #11.
☐	☒	10) Agricultural Water Suppliers: Have all of the agricultural water suppliers, listed in #9 above, submitted complete Agricultural Water Management Plans (AWMPs) to DWR? Have those plans been verified as complete by DWR? If the plans have not been submitted, please indicate the anticipated submittal date.
Surface Water Diverters		
☐	☒	11) Surface Water Diverters: List the surface water diverters that will receive funding from the proposed grant. Please provide the agency/organization name, a contact phone number, and an e-mail address. If there are none, please indicate so.
☐	☒	12) Surface Water Diverters: Have all of the surface water diverters, listed in #11 above, submitted surface water diversion reports to the State Water Resources Control Board in compliance with requirements outlined in Part 5.1 (commencing with §5100) of Division 2 of the CWC? If not, explain and provide the anticipated date for meeting the requirements.

The following text provides additional explanation of some of the eligibility requirements listed in the checklist.

All Applicants

- **Local Agency.** An eligible grant applicant must be a local agency, as defined by the CA Water Code §78640(b). As defined in the code, "local agency" or "agency" means any city, county, district, joint powers authority, or other political subdivision of the state involved with water management. As a political subdivision of the state, public universities, including the University of California, are considered to be a local agencies for this grant program.
- **Consistency with Regional Water Quality Control Plan (Basin Plan).** Projects should be consistent with the area Basin Plan. This means that all projects must not contradict the goals and intentions of the Basin Plan, and must support the beneficial uses of water prescribed in the plan.

Urban Water Suppliers

- **Urban Water Management Planning Act (UWMPA) Compliance.** Water suppliers who were required by the UWMPA (CWC §10610 et seq.) to submit an Urban Water Management Plan (UWMP) to DWR must have submitted a complete UWMP to be eligible for State funding. Applicants and project proponents that are urban water suppliers and have projects that would receive funding through the Drainage Reuse Grant Program must have a 2010 UWMP that has been verified as complete by DWR before a grant agreement will be executed.
- **Best Management Practice (BMP) Compliance.** Assembly Bill (AB) 1420 (Stats. 2007, Ch. 628) conditions the receipt of a water management grant or loan by urban water suppliers upon the implementation of water demand management measures described in CWC §10631. DWR has determined that implementation of the California Urban Water Conservation Council (CUWCC) BMPs will fulfill the requirements of AB 1420. An urban water supplier may be eligible for a water management grant or loan if the urban water supplier demonstrates that BMPs have been implemented or scheduled, or are in the process of being implemented or scheduled. Urban water suppliers applying to use grant funds for implementation of BMPs must ensure they have submitted all the necessary information. Therefore, urban water suppliers who are applicants or project

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Office Of Research and Economic Development
SPONSORED PROJECTS OFFICE

UNIVERSITY OF CALIFORNIA, MERCED
5200 NORTH LAKE ROAD
MERCED, CA 95343
TELEPHONE: (209) 228-4571

December 18, 2014

Attachment III—Eligibility Documentation

California Department of Water Resources
Division of Integrated Regional Water Management
South Central Region Office
3374 E. Shields Avenue
Fresno, CA 93726

Eligibility Statement: An Efficient Solar Thermal-Powered Evaporation System for Salt Harvesting

Dear Committee Members:

On behalf of the Regents of the University of California, I am writing to certify the institutional eligibility of University of California, Merced (UC Merced) as an applicant to the DWR Drainage Reuse Grant Program for the above-named grant application. UC Merced is eligible to apply for this award on the basis of satisfying the following:

- The applicant is a local agency as defined in CA Water Code 78640(b). Per the 2014 proposal solicitation, the University of California is considered to be a local agency for this grant program.

- Regarding the form and composition of the applicant, the University of California shall constitute a public trust to be administered by the existing corporation known as "The Regents of the University of California," with full powers of organization and government, subject only to such legislative control as may be necessary to insure the security of its funds and compliance with the terms of the endowments of the university. Said corporation shall be in form a board composed of seven ex officio members, which shall be: The Governor, the Lieutenant Governor, the Speaker of the Assembly, the Superintendent of Public Instruction, the president and the vice president of the alumni association of the university and the acting president of the university, and 18 appointive members appointed by the Governor and approved by the Senate.

- All extramural awards to the University of California for research, training, or public service are made in the University's corporate name, "The Regents of the University of California." Pursuant to Standing Order 100.4, the President of the University is authorized to solicit and accept or execute such proposals and awards, with stated exceptions. The President has re-delegated this authority to the Provost and Executive Vice President, who have, in turn, re-delegated their authority, with varying levels and limitations, to the appropriate Vice Chancellor for Research and Director of the Sponsored Projects Office. This authorization is by formal delegation of contract and grant authority.

- The proposal performance and tracking of award funds is managed internally. University faculty and staff are responsible for administering an award over the performance period of a grant. Specific areas of award administration include accounting officers, general counsel, internal auditors, material managers, patent administrators, personnel officers, purchasing managers, and risk managers.

Should you have any questions, please do not hesitate to contact me.

Sincerely,

Thea Vicari

Thea Vicari
Director
Sponsored Projects Office
University of California, Merced